A Reasoned Action Approach to Participation in Lesson Study

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abstract
This exploratory study investigates teachers' attitude toward Lesson Study (LS), a professional development approach which is relatively unknown in the Netherlands. The paper reports a qualitative study based on the Reasoned Action Approach, which explains how teachers' beliefs influence their intention to engage in Lesson Study in the context of an interschool Professional Learning Community (PLC). 26 teachers of two PLCs were interviewed before their participation in LS and after the execution of two LS cycles during one school year. The interviews were content-analyzed. The findings show that the teachers felt relatively positive about the LS project before the start, and that after one year this positive attitude had slightly increased. The same applies for teachers' subjective norms which, after one year, was more supportive. Findings also indicate diversity in personal agency with regard to facilitating conditions.

Introduction

Lesson Study (LS hereafter in this paper) in the Netherlands is a relatively new professional development approach and is rapidly spreading. In LS, teachers collaboratively plan a research lesson, observe this lesson live, collect data and analyze them together to improve pupils' learning (Fernandez & Chokshi, 2002). LS is characterized through collaboration and research, and is practice based and student oriented; characteristics that are very similar to those of effective professional development as identified in the review of Van Veen et al. (2010). LS is therefore a theoretically powerful professional development approach. Though mainly based on small-scale qualitative research, the review of Xu and Pedder (2014) confirms that LS can indeed be a powerful tool for teachers to improve their teaching practice.

How promising a new professional development initiative might be, for successful implementation in teaching practice all sorts of personal, interpersonal, and conditional factors have to be respected (Kooy & Van Veen, 2012). Given the crucial role of teachers pertaining to the performance of LS, the purpose of this study is to explore personal factors that influence teachers' acceptance of LS. Accordingly, investigating the acceptance of LS by teachers can contribute to explaining and improving the introduction and integration of LS into Dutch schools and the Dutch educational system.

An important, if not the most important personal factor connected with effective collaborative professional development (Thurlings & Den Brok, 2014), is the *intention* or motivation. According to the Reasoned Action Approach or RAA (Fishbein, 2008), which combines two empirically tested theories of behavior prediction and explanation, namely the Theory of Reasoned Action (Fishbein, 1980; Ajzen & Fishbein , 1980) and the Theory of

Planned Behavior (Ajzen, 1991), the single best predictor that someone will carry out a certain behavior is one's intention to perform that behavior. The RAA assumes that people's behavior follows from their beliefs about performing that behavior. The RAA assumes that intentions are a function of three factors: (1) attitude; (2) subjective norm, and (3) perceived control. The concept of intention therefore assumes to capture a range of motivational factors (Ajzen, 1991). The RAA is an important theoretical framework that was developed through empirical work over de past decade by major behavioral theorists (Montano & Kasprzyk, 2014). The RAA has been used successfully to predict and explain a wide range of health behaviors and intentions, and is also applied in educational contexts in particular in the domain of technology integration (e.g. Cheon et al., 2012; Kreijns et al,.2013), curriculum reform (Underwood, 2012) and innovative teacher behavior (Thurlings et al., 2015), but as far as we know not in the context of LS, which we consider a new professional development practice in the Netherlands.

When we apply the RAA on the performance of LS, the best predictor to carry out LS is the intention to engage in LS as a function of the three earlier mentioned factors: (1) the teacher's attitude toward performing LS, (2) the amount of social pressure the teacher feels vis-à-vis performing LS, and (3) the teacher's beliefs that s/he has the necessary skills and abilities to perform LS, even under a number of difficult circumstances – that is, the teacher's feelings of self-efficacy or perceived control over the performances of LS.

This brings us to our main research question in this paper: whether and how do the three factors of the RAA influence teachers' behavioral intention with regards to the performance of LS before and after a year of participation in two LS-cycles? An answer to this question will help us to understand the introduction and integration of LS into the Netherlands. We will investigate our research question by using a qualitative research design.

Research questions

The main research question in this study has been subdivided in the following research questions:

1. How do the three factors influence teachers' intention before the start of the LS?
2. How do the three factors influence teachers' perception after one year of participation in two LS-cycles?

Method

We chose a qualitative research design, because this methodology allows the identification of salient behavioral, normative, efficacy, and control beliefs associated with the performance of LS for our population. To collect data, semi-structured interviews were conducted to elicit information about the beliefs associated with the performance of LS, and to explore the impact of central constructs of the RAA model on teachers' acceptance of LS. Although the limited amount of teachers involved in this project did not allow a quantitative research design, the qualitative data were first qualitatively processed and subsequently quantified to get an overall impression of the strength of the intention and the direction (positive or negative) of the three factors.

context

The context of the study are two Professional Learning Communities (PLCs), a three-year pilot project (2014–2017) for Dutch as mother tongue and mathematics launched by the Dutch Ministry of Education in the Netherlands. The two PLCs consist of 28 teachers of 13 different secondary schools spread throughout the North Netherlands. Each school year two LS cycles take place in LS teams of three to six persons. Teachers are supported by two subject pedagogy teacher educators. Teachers visit each other's schools for observing the research lesson. The general theme of both PLCs is activating and differentiating education, since this is problematic for many teachers in Dutch secondary education (Dutch Schools Inspectorate, 2016). Besides, both PLCs have their own content specific topic. An important aim of the PLCs is to bring LS into the schools through the PLC participant as LS facilitator.

participants

In total, 26 teachers, 14 teachers of math (5 male, 9 female) and 12 teachers (1 male, 11 female) of Dutch participated in the interviews. The average age is 43 years (range 27 – 59), and the average of teaching experience in years is 15 (range 3 – 37). They were either fully qualified, or had a qualification to teach junior forms of secondary education. The PLC project aims to facilitate LS in the participating schools through the PLC members; to find future LS facilitators, it was vital teachers were available that were motivated, didactically strong and both student- as well as development-oriented. Since we were able to sample all teachers involved in the PLCs, we used a homogeneous sampling approach in this research.

data collection

Data were collected conducting semi-structured interviews by telephone, before (September 2014) and after a year of participation in two LS-cycles (April/May 2015). The questions were based on the elicitation questions formulated by Montano and Kasprzyk (2014) to provide the following types of information:

1. Positive or negative feeling about performing LS and positive or negative outcomes of performing LS (attitude)
2. Individuals or groups to whom they might listen who are in favor of or opposed to their performing LS (subjective norm)
3. Situational or environmental facilitators and barriers that make the performance of LS easy or difficult to perform (perceived control and self-efficacy).

Appendix 1 presents the questions asked during the interview. The interviews were continued until saturation point, when no new responses were elicited (Montano & Kasprzyk, 2014). The duration of the conducted interviews varied between 12 and 28 min in length. All participants gave informed consent for audio recording of the interviews and were informed about the purpose of the study. All interview sessions were recorded and fully transcribed. The transcripts provided the basis to the data analysis.

data analysis

The interviews were content-analyzed to identify relevant behavioral attributes or outcomes, normative referents, and facilitators an barriers. For analyzing the three factors, attitude, subjective norm and perceived control, a category and label system were generated. Establishing categories and labels can be accomplished either deductively based on an established theoretical foundation or inductively using the collected data. Although the literature on professional development provides a fast knowledge about all sorts of personal, interpersonal, and conditional factors (Kooy & Van Veen, 2012), we have chosen to inductively generate a category and label system by using the collected data and by complementing it while analyzing the transcripts. Two researchers performed the analysis and new situations and uncertainties were discussed until consensus was reached. Some new labels were added during the coding of the second interview sessions. Subsequently, all transcripts of both interview sessions were coded according to the three main categories, and were then labeled positive (+) neutral (0) or negative (-).

1. **attitude**: the four categories are Feelings, Outcomes, Collaboration and Organization. In the category Feelings, labels pertain to the personal feelings of teachers toward the LS project as curious (+), reserved (0) and agitated (-). In the category Outcomes examples of labels are innovative (+), doubtful (0) and no surplus value (-). In the category Collaboration, examples of labels are nice team (+), don't know them (0), or no click (-). Examples of labels in the category Organization are subject (+ or -), reserved (0) and too theoretical (-).

2. **subjective norm**: the three categories are Support management, Support colleagues, and Initiative. In the category Support management, examples of labels are interested (+), neutral (0) and critical (-). In the category Support colleagues, examples of labels are interested (+), reserved (0) and jealous (-). Examples of labels in the category Initiative are voluntary (+), requested (0), and ordered (-).

3. **perceived control**: the seven categories are Personal knowledge and skills, Support, Job description, Schedule, Time, Money, Distance. In the category Own knowledge and skills, examples of labels are positive (+), reserved (0), and negative (-). In the category Support, labels are support useful (0) and support necessary (-). In the category Job description, labels are written down (+), will be written down (0), and not written down (-). In the category Schedule, examples of labels are arranged (+), will be arranged (0), and not arranged (-). Examples of labels in the category Time are arranged (+), reserved (0) and pressure of work (-). In the category Costs, the only label is expensive (-). In the last category Distance, examples of labels are positive (+), and too remote (-).

Appendix 2 provides the complete category and label system which presents a list of feelings, behavioral outcomes, normative referents in favor, neutral and opposed, and barriers and facilitators with respect to performing LS.

data scoring

To get an overall impression of the intention and the direction (positive, neutral or negative) of the three factors, every teacher got a score for each key determinant. Each positive label presented +1, a neutral label 0, and a negative label -1. For every teacher, the labels per key determinant were averaged. Thus, the score 0 can mean three things: the teacher has just as many positive labels as negative labels, or one neutral label, or no label at all. All final teacher scores are listed in Appendix 3.

Results

Findings are presented according to the research questions and to the generated category and label system.

intention before the start of the Lesson Studies and after one year

Table 1 shows the mean scores for the three factors for all 26 teachers. The overall intention and the attitude of the participating teachers at the start of the project in general is positive, and after one year the attitude (+1.0) has increased. Also the social norm was positive at the start of the project, and the commitment of school management and colleagues seems to have increased during the year. Finally, the personal agency was also positive at the start, but this is the only key determinant which, after one year, has reduced.

Table 1. *Intention before the start of the Lesson Studies and after one year.*

	before	**after one year**	**change**
Attitude	3.3	4.3	+ 1.0
Social norm	0.8	1.2	+ 0.4
Perceived control	0.5	0.2	- 0.3

Conclusion and discussion

LS is a relatively new approach in professionalization in the Netherlands with an important potential to support teachers' learning processes (Xu & Pedder, 2014). But whether the promised benefits of LS can be realized in Dutch schools depends to a large extent whether teachers will accept this approach and integrate it into their work or not. The RAA (Fishbein, 2008) offers an interesting theoretical framework for studying whether or not teachers have the intention to perform LS. Our main research question in this paper is if and how the three factors of the RAA influence teachers' behavioral intention with regard to LS before and after a year of participation in two LS-cycles. We investigated this question by using a qualitative research design. Our conclusion is that the RAA and the three factors are useful in the study of the important personal factor of teacher's intention. Applied to our data, the overall intention of the participating teachers at the start of the LS project seems positive, and after the experience of two LS cycles the overall positive feeling has even slightly increased, due to the two factors attitude and social norm. The perceived control, probably due to schedule and time issues, is the only key determinant which has decreased. For a deeper understanding, it would be interesting to link these interview results to data about the LS process and results in the form of self-reported learning effects, data that we also collected from these two groups of teachers. Other interesting questions for further investigation are

whether there are differences between participants that remain and those that leave the LS project.

This paper also presents some limitations. We pretend that each label has the same weight, but this is quite artificial. Quantifying the qualitative data primarily gave us an overall picture. However, for a next version of this paper, we propose to illustrate the results with quotes of the interviews in order to give more insight in the relative weight and meaning of the labels and depth in the nature of teachers' conceptions. Furthermore, the findings presented here depend on a small and specific group of 26 willing teachers (homogeneous sampling approach) due to the nature of the LS project. Since behaviors in the context of the RAA should be defined on the basis of a specific action, target, context and time (Montano & Kasprzyk, 2014), the behavior in the context of this interschool LS project and thereby the results of this study cannot be translated one-to-one to other educational contexts. We therefore recommend to do a similar study among 'average' teachers (a mix of willing and not willing teachers) who perform LS in the context of their own school. Once the behavioral, normative, efficacy, and control beliefs associated with the performance of LS for the average teachers in the context of the school have been identified, appropriate measures of the constructs could be designed. A quantitative survey using those measures could be conducted and analyses could be carried out (for example structural equation modeling) to identify the specific beliefs that best explain behavioral intention to perform or not perform LS. The last step could be the design of an intervention to reinforce or reverse the (non)performance of LS.

In this paper we explored an important personal factor that influences the adoption of LS from a teachers' perspective. Despite the above mentioned restrictions of this exploratory study, our findings provide some insights into key factors, that influence teachers' acceptance of LS in Dutch secondary schools for which the RAA offered an interesting and useful theoretical framework. We plan to continue the interviews during the next years of the LS project to examine whether categories and labels change, disappear or should be added.

Although this study did not aim to generalize its findings, it raises important issues that may be relevant to researchers and educators in similar situations, given that Lesson Study is coming up in several European countries. It may give them insight into potential factors that could affect a decision to adopt Lesson Study in their own contexts.

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Appendix 1: Elicitation questions (in Dutch)

1. Wat vind je van het LS-project?

Wat spreekt je aan? Wat vind je leuk?

Wat spreekt je niet aan? Wat vind je niet leuk?

2. Wat zijn / verwacht je als voordelen/positieve effecten van het deelnemen aan het LS-project?

En als nadelen/negatieve effecten?

3. Zijn er ook mensen die je echt steunen, stimuleren of zelf pressen om deel te nemen?

Of juist niet of zelfs tegenwerken?

4. Zijn er dingen die ’t je makkelijk maken om aan dit LS-project mee te doen?

Zijn er ook dingen die ’t je moeilijk maken?

5. Heb je zelf voldoende kennis en vaardigheden om mee te draaien in dit LS-project?

Wat zou je helpen?

Zijn er bepaalde andere barrieres?
Hoe ga je daar dan mee om?

6. Zijn er nog dingen die je in dit kader relevant vindt om te bespreken maar die nog niet aan de orde zijn geweest?

Appendix 2: Complete category and label system (labels in Dutch) (bold labels added during the coding of the second interview)

Main categories	Sub-categories	Positive labels	Neutral labels	Negative labels
Attitude	**Feelings**	open positief interessant nieuwsgierig energie krijgen blij dat we beginnen uitdaging initiatief	terughoudend onduidelijkheid nog niet begonnen	onrust
	Outcomes	nuttig vernieuwend positief effect leerlinggericht lesvaardigheid verbeteren thematische ontwikkeling schoolbreed effect gemotiveerd inspireren vleugels uitslaan verbreding van kennis	twijfel over resultaat **twijfel schoolbrede toepassing**	weinig vernieuwend geen meerwaarde
	Collaboration	samenwerken positief samenwerking nuttig **leuke groep**	kent groep nog niet	geen klik met groep niveauverschil leeftijdsverschil samenwerken negatief
	Organization	project kort theoretisch observaties onderwerp verschillende scholen project positief **extra bijeenkomsten**	afwachtend over opzet	onderwerp afhakers **negatief over opzet theorie (te weinig/te veel)** **communicatie**
Social norm	**Support management**	betrokken gesteund belangstellend stimulerend volledige medewerking	project nog onbekend niet belangstellend	niet betrokken niet gesteund tegenwerkend kritisch
	Support colleagues	betrokken gesteund belangstellend open voor nieuwe dingen	project nog onbekend afwachtend neutraal	niet betrokken niet gesteund tegenwerkend jaloezie kritisch
	Initiative	zelf voor gekozen vrijwillig	gevraagd	opgedragen niet zelf bedacht

Perceived control	**Personal knowledge & skills**	positief vaardigheden zijn er ervaring	komt wel vaardigheden onbekend voorbereiden	te weinig kennis te weinig vaardigheden achterstand
	Support	begeleiding nuttig		begeleiding nodig scholing nodig
	Job description	staat in omschrijving	staat nog niet in omschrijving	staat niet in omschrijving
	Schedule	rooster geregeld vrijdagmiddag positief	rooster nog niet geregeld	rooster niet geregeld voor leerlingen lastig vrijdagmiddag negatief
	Time	voldoende uren gekregen tijd gekregen	afwachtend	hoeveelheid werk werkdruk **tijd vrijmaken**
	Costs			duur
	Travel	reisafstand prima OV		reisafstand te lang geen vervoer

Appendix 3: Overview teacher scores per key determinant

teacher		before			after one year		
		Attitude	Social norm	Perceived control	Attitude	Social norm	Perceived control
1	Dutch	2	0	-4	3	1	0
2	Dutch	1	3	-2	1	-3	-1
3	Dutch	3	0	1	1	2	-2
4	Dutch	3	1	0	3	3	1
5	Dutch	3	1	-1	5	0	2
6	Dutch	3	1	3	5	4	0
7	Dutch	4	-1	2	2	-1	1
8	Dutch	-1	1	-1	10	0	1
9	Dutch	5	1	3	6	4	0
10	Dutch	4	0	4	4	3	0
11	Dutch	4	2	-2	4	1	2
12	Dutch	4	1	1	7	1	2
13	math	2	-1	2	8	2	-1
14	math	8	3	-6	6	0	-1
15	math	3	3	2	5	3	-1
16	math	3	1	-3	9	1	0
17	math	4	0	1	3	2	-1
18	math	3	0	1	5	3	-1
19	math	0	0	-1	-2	0	0
20	math	2	0	0	0	1	-3
21	*math*	-	-	-	*-2*	*1*	*1*
22	math	5	1	2	4	0	2
23	*math*	*4*	*1*	*3*	-	-	-
24	math	5	4	4	7	4	2
25	math	0	-2	3	5	-4	-2
26	math	6	1	2	3	1	2
27	math	5	1	1	5	0	1
28	math	4	1	1	2	4	1